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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/900,949	07/10/2001	Koichiro Kawaguchi	35.G2855	9183

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EXAMINER

CULLER, JILL E

ART UNIT	PAPER NUMBER
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2854

3

DATE MAILED: 10/07/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/900,949

Applicant(s)

KAWAGUCHI, KOICHIRO

Examiner

Jill E. Culler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 July 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-8, 10 and 11 is/are rejected.
- 7) ☒ Claim(s) 4, 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 July 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. Figure 13 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 1-11 are objected to because of the following informalities: In claim 1, on line 7, the word "a" is missing in front of "plurality". Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 2 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In line 4, it is not clear what is meant by a roller portion of a rubber member.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 10/1 and 11/10/1 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,622,440 to Yamamoto et al.

With respect to claim 1, Yamamoto et al. shows a recording apparatus, 10, comprising a transporting roller, 45, for transporting recording sheets further upstream in the transporting direction than the recording means, a plurality of discharging rollers, 53, 54 for transporting recording sheets further downstream in the transporting direction than the recording means

Yamamoto does not teach a farthest downstream discharging roller disposed farthest downstream in the transporting direction of the plurality of discharging rollers which is of higher precision than upstream side discharging rollers disposed farther upstream. It should be noted that, of any two rollers, either one may be of slightly higher precision since each roller is manufactured to a given tolerance. Since each roller has a given tolerance, it would be obvious to one of ordinary skill in the art to make the downstream roller of a higher precision, since such would result from routine manufacturing of the rollers.

With respect to claims 10/1 and 11/10/1, Yamamoto does not teach that the recording means is a recording head which records on recording sheets by discharging ink or that the recording head applies electricity to electro-thermal converters according to signals, and discharges ink using thermal energy generated by the electro-thermal converters. However, this is a common design for a recording head and it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Yamamoto with this type of recording head.

7. Claims 2, 10/2 and 11/10/2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. in view of U.S. Patent No. 4,767,114 to Nishimoto and U.S. Patent No. 5,961,234 to Uchikata.

With respect to claim 2, Yamamoto teaches all that is claimed as in the above rejection of claim 1, except that each discharge roller comprises a shaft serving as a center of rotation and a roller portion of a rubber member wherein the shaft of the farthest-downstream discharging roller is formed of metal and the shafts of the upstream-side discharging rollers are formed of resin.

Nishimoto teaches roller members made of rubber attached to a shaft. See column 2, lines 36-38. Uchikata teaches that roller shafts can be made of metal or resin. See column 1, lines 20-21.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the discharge rollers of Yamamoto to have the materials

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of Nishimoto and Uchikata in order to have sheet gripping and water repellent properties.

With respect to claims 10/2 and 11/10/2, Yamamoto does not teach that the recording means is a recording head which records on recording sheets by discharging ink or that the recording head applies electricity to electro-thermal converters according to signals, and discharges ink using thermal energy generated by the electro-thermal converters. However, this is a common design for a recording head and it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Yamamoto with this type of recording head.

8. Claims 3, 10/3 and 11/10/3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. in view of U.S. Patent No. 4,767,114 to Nishimoto and U.S. Patent No. 5,961,234 to Uchikata and further in view of U.S. Patent No. 5,255,023 to Bowlby, Jr. et. al.

With respect to claim 3, Yamamoto, Nishimoto and Uchikata teach all that is claimed as in the above rejection of claim 2, except that the farthest-downstream discharging roller is formed by polishing.

Bowlby, Jr. et. al. teaches a discharging roller, 411, made of polished metal. See column 8, lines 60-62.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the discharge roller of Yamamoto to be made of the

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polished metal of Bowlby, Jr. in order to have a better controlled surface finish for the roller.

With respect to claims 10/3 and 11/10/3, Yamamoto does not teach that the recording means is a recording head which records on recording sheets by discharging ink or that the recording head applies electricity to electro-thermal converters according to signals, and discharges ink using thermal energy generated by the electro-thermal converters. However, this is a common design for a recording head and it would have been obvious to one of ordinary skill in the art at the time of the invention to modify the apparatus of Yamamoto with this type of recording head.

9. Claims 5/1, 6/5/1, 7/5/1 and 8/5/1 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. in view of U.S. Patent No. 6,203,007 to Choi.

With respect to claims 5/1 and 8/5/1, Yamamoto et al. teaches all that is claimed as discussed in the above rejection of claim 1 except for a load torque providing means for providing load torque to the farthest-downstream discharging roller, where the load torque providing means is a compression coil spring for pressing against a gear on the axis of the farthest-downstream discharging roller.

Choi teaches a load torque providing means, 503, for providing load torque to a discharge roller, 510a, where the load torque providing means is a compression coil spring for pressing against a gear on the axis of the discharge roller.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to apply the load torque providing means of Choi to a discharge

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roller of Yamamoto et al. in order to more accurately control the sheet discharge process. It is noted that this would include the farthest-downstream discharging roller.

With respect to claim 6/5/1, Yamamoto and Choi do not teach that the load torque providing means is a leaf spring and friction pad for pressing against the shaft of said farthest-downstream discharging roller. However, a leaf spring and friction pad are a common method of producing load torque on a roller. Therefore, it would be obvious to one of ordinary skill in the art to substitute the leaf spring and friction pad for the compression coil spring of claim 8 in order to provide the desired load torque.

With respect to claim 7/5/1, Yamamoto and Choi do not teach that the load torque providing means is a clutch spring wound onto the shaft of said farthest-downstream discharging roller. However, a clutch spring is a common method of producing load torque on a roller. Therefore, it would be obvious to one of ordinary skill in the art to substitute the clutch spring for the compression coil spring of claim 8 in order to provide the desired load torque.

10. Claims 5/2, 6/5/2, 7/5/2 and 8/5/2 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. in view of U.S. Patent No. 4,767,114 to Nishimoto and U.S. Patent No. 5,961,234 to Uchikata and further in view of U.S. Patent No. 6,203,007 to Choi.

With respect to claims 5/2 and 8/5/2, Yamamoto et al., Nishimoto and Uchikata teach all that is claimed as discussed in the above rejection of claim 2 except for a load torque providing means for providing load torque to the farthest-downstream

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discharging roller, where the load torque providing means is a compression coil spring for pressing against a gear on the axis of the farthest-downstream discharging roller.

Choi teaches a load torque providing means, 503, for providing load torque to a discharge roller, 510a, where the load torque providing means is a compression coil spring for pressing against a gear on the axis of the discharge roller.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to apply the load torque providing means of Choi to a discharge roller of Yamamoto et al. in order to more accurately control the sheet discharge process. It is noted that this would include the farthest-downstream discharging roller.

With respect to claim 6/5/2, Yamamoto and Choi do not teach that the load torque providing means is a leaf spring and friction pad for pressing against the shaft of said farthest-downstream discharging roller. However, a leaf spring and friction pad are a common method of producing load torque on a roller. Therefore, it would be obvious to one of ordinary skill in the art to substitute the leaf spring and friction pad for the compression coil spring of claim 8 in order to provide the desired load torque.

With respect to claim 7/5/2, Yamamoto and Choi do not teach that the load torque providing means is a clutch spring wound onto the shaft of said farthest-downstream discharging roller. However, a clutch spring is a common method of producing load torque on a roller. Therefore, it would be obvious to one of ordinary skill in the art to substitute the clutch spring for the compression coil spring of claim 8 in order to provide the desired load torque.

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11. Claims 5/3, 6/5/3, 7/5/3 and 8/5/3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. in view of U.S. Patent No. 4,767,114 to Nishimoto, U.S. Patent No. 5,961,234 to Uchikata, U.S. Patent No. 5,255,023 to Bowlby, Jr. et. al. and further in view of U.S. Patent No. 6,203,007 to Choi.

With respect to claims 5/3 and 8/5/3, Yamamoto et al. teaches all that is claimed as discussed in the above rejection of claim 3 except for a load torque providing means for providing load torque to the farthest-downstream discharging roller, where the load torque providing means is a compression coil spring for pressing against a gear on the axis of the farthest-downstream discharging roller.

Choi teaches a load torque providing means, 503, for providing load torque to a discharge roller, 510a, where the load torque providing means is a compression coil spring for pressing against a gear on the axis of the discharge roller.

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to apply the load torque providing means of Choi to a discharge roller of Yamamoto et al. in order to more accurately control the sheet discharge process. It is noted that this would include the farthest-downstream discharging roller.

With respect to claim 6/5/3, Yamamoto and Choi do not teach that the load torque providing means is a leaf spring and friction pad for pressing against the shaft of said farthest-downstream discharging roller. However, a leaf spring and friction pad are a common method of producing load torque on a roller. Therefore, it would be obvious to one of ordinary skill in the art to substitute the leaf spring and friction pad for the compression coil spring of claim 8 in order to provide the desired load torque.

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With respect to claim 7/5/3, Yamamoto and Choi do not teach that the load torque providing means is a clutch spring wound onto the shaft of said farthest-downstream discharging roller. However, a clutch spring is a common method of producing load torque on a roller. Therefore, it would be obvious to one of ordinary skill in the art to substitute the clutch spring for the compression coil spring of claim 8 in order to provide the desired load torque.

Allowable Subject Matter

12. Claims 4 and 9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jill E. Culler whose telephone number is (703) 308-1413. The examiner can normally be reached on M-Th 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on (703) 305-6619. The fax phone numbers for the organization where this application or proceeding is assigned are (703)

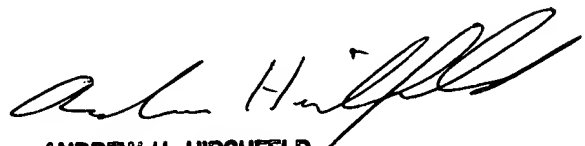
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308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

jec
October 1, 2002



ANDREW H. HIRSHFELD
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